AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1-81 (cancelled).

82 (currently amended). A method of assessing one or more characteristic(s) of an organ or part thereof from multiple images acquired of the organ or part thereof, the method including forming a fit between a reference model of the geometric shape of the organ or part thereof and a series of acquired images of the organ or part thereof by a series of user interactive steps which consist essentially of:

defining the spatial position of at least two of the acquired images;

forming an initial fit between the reference model and the acquired images by displaying one or more of the acquired image(s) to a user, manually user defining one or more reference markers on the acquired image(s), and initially fitting the model to the acquired image(s) by reference to the reference markers on the image(s);

displaying to a user an acquired image of the subject organ or part thereof, the image including at least one organ boundary derived from the intersection of a surface of the organ with the plane of the image;

displaying to the user a representation of the initial fit of the reference model by displaying on the acquired image a representation of the intersection of the model with the plane of the image;

manually user-defining one or more reference guide points on a user-selected organ boundary on the image displayed to the user, for which the spatial positions have been defined;

on user definition of the or each reference guide point, converting the guide point(s) to coordinates which define the three dimensional position of the guide point(s); improving the fit of the model to the guide point(s) to form an improved fit of the model for the organ or part; displaying to the user a representation of the improved fit of the model by displaying on an acquired image a representation of the intersection of the improved fit of the model with the plane of the user-selected image;

manually user-defining one or more further reference guide points on at least one further user-selected image displayed to the user, for which the spatial positions have been defined; and

on user definition of the or each reference guide point, converting the further guide point(s) to coordinates which define the three dimensional position of the guide point(s); and further improving the fit of the model by fitting the model to said further reference guide point(s), to thereby form a further improved fit of the estimate model for the organ or part which enables assessing the one or more characteristic(s) from the estimate model.

83 (previously presented). A method as claimed in claim 82 wherein the step of forming the initial fit between the reference model and the images, includes the steps of defining a point associated with the reference marker(s), on each of two images defining a reference line in 3-dimensional space between the points, calculating the distance as

a function of the length of the reference line, and at least approximately matching the scale of the reference model and the images according to the distance between the points.

84 (previously presented). A method as claimed in claim 83 wherein the reference model comprises a mathematically defined reference model.

85 (previously presented). A method as claimed in claim 84 wherein the reference model comprises an ellipsoid having a reference line as a central axis and one or more surface points, each surface point specified by a radial distance from the central axis.

86 (previously presented). A method as claimed in claim 82 further comprising the step of performing image processing on one or more of the images.

87 (previously presented). A method as claimed in claim 82 further comprising the step of calculating the volume of the subject organ or part from the estimate model.

88 (previously presented). A method as claimed in claim 82 further comprising the step of calculating the mass of the subject organ or part from the estimate model.

89 (previously presented). A method as claimed in claim 82 wherein the subject organ comprises a ventricle of the heart and the characteristics measured include

ventricular mass, endocardial volume and/or wall thickness of all of the ventricle or part thereof.

90 (previously presented). A method as claimed in claim 82 wherein the subject organ comprises a ventricle of the heart and the characteristics measured include ventricular abnormalities identified through changes in wall thickness over time.

91 (previously presented). A method as claimed in claim 82 wherein the subject organ comprises a kidney and the characteristics measured include cortical thickness.

92 (currently amended). A system for assessing one or more characteristic(s) of an organ or part thereof from multiple images acquired of the organ or part thereof by forming a fit between a reference model of the geometric shape of the organ or part thereof and a series of acquired images of the organ or part thereof by a series of user interactive steps, the system comprising:

a memory in which is stored the spatial position of at least two of the images;

initial fitting means configured to form an initial fit between the reference model and the acquired images by displaying one or more reference markers to a user, manually user defining one or more reference markers on the acquired image(s), and initially fitting the model to the acquired image(s) by reference to the reference markers on the image(s);

a display configured to display to a user an acquired image of the subject organ or part thereof, the image including at least one organ boundary derived from the

intersection of a surface of the organ with the plane of the user-selected image, the display further configured to display to the user a representation of the initial fit of the reference model by displaying on the image a representation of the intersection of the model with the plane of the image;

reference guide point definition means enabling a user to manually define one or more reference guide points on a user-selected organ boundary on the image displayed to the user, for which the spatial positions have been defined;

conversion means configured, on user definition of the or each reference guide point, to convert the guide point(s) to coordinates which define the three dimensional position of the guide point(s);

fit improving means configured, on user definition of the or each reference guide point, to improve the fit of the model to the guide point(s) to form an improved fit of the model for the organ or part thereof;

the display further configured, on user definition of the or each reference guide point, to display to the user a representation of the improved fit of the model by displaying on an acquired image a representation of the intersection of the improved fit of the model with the plane of the image;

the reference guide point definition means further configured to enable a user to manually define one or more further reference guide points on at least one further image displayed to the user, for which the spatial positions have been defined;

the conversion means further configured, on user definition of the or each reference guide point, to convert the additional guide point(s) to coordinates which define the three dimensional position of the guide points; and

the fit improving means further configured, on user definition of the or each reference guide point, to further improve the fit of the model by fitting the model to said further reference guide point(s), to thereby form a further improved fit of the estimate model for the organ or part which enables assessing the one or more characteristic(s) from the estimate model.

93 (previously presented). A system as claimed in claim 92 wherein the initial fitting means is configured to form the initial fit between the reference model and the images by defining a reference line in three-dimensional space between the points, calculating the distance as a function of the length of the reference line, and at least approximately matching the scale of the reference model and the images according to the distance between the points.

94 (previously presented). A system as claimed in claim 93 wherein the reference model comprises a finite element model.

95 (previously presented). A system as claimed in claim 94 wherein the reference model comprises an ellipsoid having the reference line as a central axis and one or more surface points, each surface point specified by a radial distance from the central axis.

96 (previously presented). A system as claimed in claim 92 further comprising image processing means configured to perform image processing on one or more of the images.

97 (previously presented). A system as claimed in claim 92 further comprising volume calculation means configured to calculate the volume of the subject organ or part from the estimate model.

98 (previously presented). A system as claimed in claim 92 further comprising mass calculation means configured to calculate the mass of the subject organ or part from the estimate model.

99 (previously presented). A system as claimed in claim 92 wherein the subject organ comprises a ventricle of the heart and the characteristics measured include ventricular mass, endocardial volume and/or wall thickness of all of the ventricle or part thereof.

100 (previously presented). A system as claimed in claim 92 wherein the subject organ comprises a ventricle of the heart and the characteristics measured include ventricular abnormalities identified through changes in wall thickness over time.

101 (previously presented). A system as claimed in claim 92 wherein the subject organ comprises a kidney and the characteristics measured include cortical thickness.

102 (currently amended) A computer readable medium having stored thereon a computer program for assessing one or more characteristic(s) of an organ or part thereof of a subject from multiple images acquired of the organ or part thereof by forming a fit between a reference model of the geometric shape of the organ or part thereof and a series of acquired images of the organ or part thereof by a series of user interactive steps, the program comprising:

storage means configured to store the spatial position of at least two of the images;

initial fitting means configured to form an initial fit between the reference model and the acquired images by displaying at least two of the acquired images to a user,, manually user defining one or more reference markers on the acquired image(s), and initially fitting the model to the acquired image(s) by reference to the reference markers on the image(s);

a display configured to display to a user an acquired image of the subject organ or part thereof, the image including at least one organ boundary derived from the intersection of a surface of the organ with the plane of the user-selected image, the display further configured to display to the user a representation of the initial fit of the reference model by displaying on the acquired image a representation of the intersection of the model with the plane of the image;

reference guide point definition means enabling a user to manually define one or more reference guide points on a user-selected organ boundary on the image displayed to the user, for which the spatial positions have been defined;

conversion means configured, on user definition of the or each reference guide point, to convert the guide point(s) to coordinates which define the three-dimensional position of the guide point(s);

fit improving means configured, on user definition of the or each reference guide point, to improve the fit of the model to the guide point(s) to form an improved fit of the model for the organ or part thereof;

the display further configured, on user definition of the or each reference guide point, to display to the user a representation of the improved fit of the model by displaying on an acquired image a representation of the intersection of the improved fit of the model with the plane of the user-selected image;

the reference guide point definition means further configured to enable a user to manually define one or more further reference guide points on at least one further acquired image displayed to the user, for which the spatial positions have been defined;

the conversion means further configured, on user definition of the or each reference guide point, to convert the additional guide point(s) to coordinates which define three-dimensional position of the guide points; and

the fit improving means further configured, on user definition of the or each reference guide point, to further improve the fit of the model by fitting the model to said further reference guide point(s), to thereby form a further improved fit of the estimate

model for the organ or part which enables assessing the one or more characteristic(s) from the estimate model.

103 (currently amended). A ~~program~~ computer readable medium as claimed in claim 102 wherein the initial-fitting means is configured to form the initial fit between the reference model and the images by defining a point associated with the reference marker(s) on each of two images, defining a reference line in three-dimensional space between the points, calculating the distance as a function of the length of the reference line, and at least approximately matching the scale of the reference model and the images according to the distance between the points.

104 (currently amended). A ~~program~~ computer readable medium as claimed in claim 103 wherein the reference model comprises a finite element model.

105 (currently amended). A ~~program~~ computer readable medium as claimed in claim 104 wherein the reference model comprises an ellipsoid having the reference line as a central axis and one or more surface points, each surface point specified by a radial distance from the central axis.

106 (currently amended). A ~~program~~ computer readable medium as claimed in claim 102 further comprising image processing means configured to perform image processing on one or more of the images.

107 (currently amended). A ~~program~~ computer readable medium as claimed in claim 102 further comprising volume calculation means configured to calculate the volume of the subject organ or part from the estimate model.

108 (currently amended). A ~~program~~ computer readable medium as claimed in claim 102 further comprising mass calculation means configured to calculate the mass of the subject organ or part from the estimate model.

109 (currently amended). A ~~progam~~ computer readable medium as claimed in claim 102 wherein the subject organ comprises a ventricle of the heart and the characteristics measured include ventricular mass, endocardial volume and/or wall thickness of all of the ventricle or part thereof.

110 (currently amended). A ~~program~~ computer readable medium as claimed in claim 102 wherein the subject organ comprises a ventricle of the heart and the characteristics measured include ventricular abnormalities identified through changes in wall thickness over time.

111 (currently amended). A ~~program~~ computer readable medium as claimed in claim 102 wherein the subject organ comprises a kidney and the characteristics measured include cortical thickness.

112 (Cancelled).